IN THE CLAIMS

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A computer tomograph, comprising:

a radiation source for emission of X-ray radiation with a predetermined intensity and a predetermined spectrum;

a detector unit, including a plurality of detectors, for verification of X-ray radiation, wherein individual detectors of the detector unit are designed to receive incident X-ray quanta in the X-ray radiation and to detect the number of X-ray quanta in the received X-ray radiation whose quantum energy exceeds a predetermined threshold value;

a transmission device for transmission of the information detected by the detectors in the detector unit ~~to an evaluation device~~; and

an evaluation device, designed to calculate a measurement result from a measurement object through which the X-ray radiation has passed on the basis of the information detected by the detectors in the detector unit, wherein the individual detectors in the detector unit are designed to detect both the intensity and the quantum energy of the individual X-ray quanta in the received X-ray radiation, and, for each measurement period, to emit a spectrum which, in addition to information about the number of X-ray quanta of medium quantum energy received in each measurement period, and hence the intensity, also contains information about the respective quantum energy in the X-ray quanta, and thus the spectrum of the received X-ray radiation; ~~and~~ wherein the evaluation device is also designed to calculate the measurement result from the measurement object on the basis of the information detected by the detectors relating to the intensity and quantum energy of the individual X-ray quanta in the received X-ray radiation, taking into account the intensity and the spectrum of the X-ray radiation emitted from the radiation source; wherein the detectors in the detector unit include a plurality of parallel-connected comparators, each having a threshold value and each including an associated counter, the comparators being designed to increment the respectively associated

counter by one unit when the quantum energy of an X-ray quantum in the received X-ray radiation exceeds the threshold value of the respective comparator; and wherein the detectors in the detector unit include a plurality of pulse logic devices, one pulse logic device being connected downstream from the respective comparators and upstream of the respective counters, the pulse logic devices providing time normalization of the output signals from the comparators.

2. (Cancelled).

3. (Currently Amended) The computer tomograph as claimed in claim ~~2~~1, wherein the threshold values of the comparators are freely variable.

4. (Cancelled).

5. (Previously Presented) The computer tomograph as claimed in claim 1, wherein the detectors in the detector unit include a receiving area for the X-ray radiation, the receiving area being formed from at least one of gadoliniumoxysulfide ceramic, bismuth germanium oxide and lutetium oxyorthosilicate.

6. (Previously Presented) The computer tomograph as claimed in claim 1, wherein the detectors in the detector unit include a direct-conversion receiving area for the X-ray radiation, the receiving area being formed from at least one of cadmium zinc telluride and cadmium telluride.

7. (Currently Amended) A method for verification of X-ray radiation by way of a computer tomograph which has a detector unit including a plurality of detectors, the method comprising:

detecting a number of X-ray quanta whose quantum energy exceeds a predetermined threshold value of the X-ray radiation received, using the individual detectors in the detector unit;

transmitting the information detected; and

calculating a measurement result from a measurement object through which the X-ray radiation has passed, on the basis of the information detected by the detectors, wherein both the intensity and the quantum energy of the individual X-ray quanta in the X-ray radiation received by the

individual detectors in the detector unit is detected, wherein the individual detectors in the detector unit emit, for each measurement period, a spectrum which, in addition to information about the number of X-ray quanta of medium quantum energy received in each measurement period, and hence the intensity, also contains information about the respective quantum energy of the X-ray quanta, and thus the spectrum of the received X-ray radiation, ~~and~~ wherein the measurement result from the measurement object is calculated on the basis of the information detected by the detectors relating to the intensity and quantum energy of the individual X-ray quanta in the received X-ray radiation, taking into account the intensity and the spectrum of the X-ray radiation emitted from a radiation source, and wherein the detectors in the detector unit include a plurality of parallel-connected comparators, each having a threshold value and each including an associated counter, the comparators being designed to increment the respectively associated counter by one unit when the quantum energy of an X-ray quantum in the received X-ray radiation exceeds the threshold value of the respective comparator, and wherein the detectors in the detector unit include a plurality of pulse logic devices, one pulse logic device being connected downstream from the respective comparators and upstream of the respective counters, the pulse logic devices providing time normalization of the output signals from the comparators.

8. (Previously Presented) The method for verification of radiation as claimed in claim 7, wherein the detection of the X-ray quanta which are received by way of the detector in the detector unit comprises:

detecting a signal, produced in the detector, as a consequence of a received X-ray quantum, whose signal level is proportional to the quantum energy in the received X-ray quantum;

comparing the signal level with a large number of predetermined threshold values; and

incrementing a counter, which is in each case associated with one range between two adjacent threshold values, by one unit when the signal level of the signal is in the range between the two adjacent threshold values.

9. (Previously Presented) The method for verification of radiation as claimed in claim 7, wherein the detection of the X-ray quanta which are received by use of the detector in the detector unit comprises:

detecting a signal which is produced in the detector as a consequence of a received X-ray quantum, whose signal level is proportional to the quantum energy in the received X-ray quantum;

comparing the signal level with a large number of predetermined threshold values; and

incrementing counters, which are each associated with one threshold value, by one unit when the signal level of the signal exceeds the respective threshold value.

10. (Previously Presented) The method for verification of radiation as claimed in claim 8, wherein a signal, which is produced in the detector as a consequence of a received X-ray quantum, is rejected if the determined signal level of the signal is lower than a lowest threshold value.

11. (Previously Presented) The method for verification of radiation as claimed in claim 8, wherein the threshold values are freely variable.

12. (Cancelled).

13. (Cancelled).

14. (Previously Presented) The computer tomograph as claimed in claim 3, wherein the detectors in the detector unit include a plurality of pulse logic devices, wherein one pulse logic device is connected downstream from the respective comparators and upstream of the respective counters, and wherein the pulse logic devices provide time normalization of the output signals from the comparators.

15. (Currently Amended) The computer tomograph as claimed in claim ~~2~~1, wherein the detectors in the detector unit include a receiving area for the X-ray radiation, the receiving area being formed from at least one of gadoliniumoxysulfide ceramic, bismuth germanium oxide and lutetium oxyorthosilicate.

16. (Currently Amended) The computer tomograph as claimed in claim ~~2~~1, wherein the detectors in the detector unit include a direct-conversion receiving area for the X-ray radiation, the receiving area being formed from at least one of cadmium zinc telluride and cadmium telluride.

17. (Previously Presented) The method for verification of radiation as claimed in claim 9, wherein a signal, which is produced in the detector as a consequence of a received X-ray quantum, is rejected if the determined signal level of the signal is lower than a lowest threshold value.

18. (Previously Presented) The method for verification of radiation as claimed in claim 9, wherein the threshold values are freely variable.

19. (Previously Presented) The method for verification of radiation as claimed in claim 10, wherein the threshold values are freely variable.

20. (Previously Presented) The method for verification of radiation as claimed in claim 17, wherein the threshold values are freely variable.

21. (Currently Amended) An apparatus for verification of X-ray radiation using a computer tomograph, comprising:

means, including a plurality of individual detectors, for detecting a number of X-ray quanta whose quantum energy exceeds a predetermined threshold value of the X-ray radiation received;

means for transmitting the information detected; and

means for calculating a measurement result from a measurement object through which the X-ray radiation has passed, on the basis of the information detected, wherein both the intensity and the quantum energy of the individual X-ray quanta in the X-ray radiation received by the individual detectors is detected, wherein the individual detectors emit, for each measurement period, a spectrum which, in addition to information about the number of X-ray quanta of medium quantum energy received in each measurement period, and hence the intensity, also contains information about the respective quantum energy of the X-ray quanta, and thus the spectrum of the received X-ray radiation, ~~and~~ wherein the measurement result from the measurement object is calculated on the basis of the information detected by the detectors relating to the intensity and quantum

energy of the individual X-ray quanta in the received X-ray radiation, taking into account the intensity and the spectrum of the X-ray radiation emitted from a radiation source, wherein the detectors include a plurality of parallel-connected comparators, each having a threshold value and each including an associated counter, the comparators being designed to increment the respectively associated counter by one unit when the quantum energy of an X-ray quantum in the received X-ray radiation exceeds the threshold value of the respective comparator, and wherein the detectors include a plurality of pulse logic devices, one pulse logic device being connected downstream from the respective comparators and upstream of the respective counters, the pulse logic devices providing time normalization of the output signals from the comparators.